The Effect of Adjuvant Pudendal Nerve Block in Post-Operative Pain Following Perianal Surgery for Non Suppurative Conditions.

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Abstract

Background: Surgical management of non-suppurative perianal conditions are associated with intense pain in the postoperative period. Day case surgeries are often not possible for such conditions due to the need for post operative analgesia. The addition of pudendal nerve block lessens the post operative pain and hence avoids the need for opioids and its side effects.

Aim: To assess the effectiveness of Pudendal nerve block in post -operative pain following perianal surgery for non suppurative conditions.

Methods and material: Prospective cohort study. Patients undergoing surgical modality for anal fissures and hemorrhoids are divided into two groups. Group A receives pudendal nerve block (local infiltration) along with Spinal anaesthesia. Group B receives only Spinal anaesthesia. Post-operative pain (visual analog score) was analyzed and results compared.

Results: It was found that there was a statistically significant association between being given pudendal nerve block and the need for analgesics post operatively.

Conclusion: Pudendal block with local infiltration, if properly administered has excellent results with regard to patient's pain tolerance, postoperative outcome and probable cost effectiveness. We conclude that the addition of pudendal nerve block with spinal anesthesia for non-suppurative anal conditions reduces the post operative pain and avoids the need for opioids and its side effects. It is safe and effective and it lessens the duration of hospital stay there by providing the patient with less stress of staying in the hospital for longer periods.

Key words: Pudendal nerve block, Hemorrhoids, Lateral Anal Sphincterotomy

Introduction

Hemorrhoids and anal fissures are the common non suppurative anorectal conditions encountered in the surgical outpatient department[1,2]. Hemorrhoidectomy involves surgery on the sensitive anoderm, which is rich in nerve endings. Surgical management of these conditions are often associated with intense pain in the postoperative period[3]. Due to postoperative pain, the possibility of a day case surgery in these anorectal diseases are not many a times feasible and most of the patients require 48 hours of hospital stay for IV or oral analgesics.

Use of local anesthesia for non-suppurative perianal conditions is still limited due to concerns about postoperative care. Review of previous literature showed that pudendal nerve block, with proper counseling and consent, is safe and feasible for use.

The nonsuppurative anorectal conditions considered here in this study are external hemorrhoids, internal hemorrhoids and anal fissure. Surgical treatment modalities commonly performed in our institution are open hemorrhoidectomy and stapler hemorrhoidopexy for hemorrhoids, and Lateral anal sphincterotomy for anal fissure[4].

In our setting, we administer diclofenac, paracetamol and an opioid (Tramadol) for postoperative pain relief. The addition of pudendal nerve block at the time of surgery lessens the post operative pain and hence avoids the need for opioids and its side effects[5]. The study is aimed at assessing the effectiveness

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of pudendal nerve block with local infiltration in postoperative pain following perianal surgery in non-suppurative conditions.

Materials and Methods:

A Prospective Cohort Study was conducted on patients who presented with hemorrhoids and anal fissure to the General Surgery department over a period of two years from December 2015 were included in the study.

Inclusion criteria:

1. Grade III - Grade IV internal hemorrhoids.
2. Grade I - II symptomatic internal hemorrhoids with failed medical therapy.
3. Intractable anal fissure.
4. Symptomatic External Hemorrhoids.

Exclusion criteria:-

1. Perianal suppurative lesions
2. Fistula in ano
3. Malignancy
4. Inflammatory bowel disease
5. ASA III & ASA IV
6. Altered bleeding parameter.

Sample size was calculated at confidence interval of 95% and precision(risk difference) of 12%. The sample size was calculated to be 65. The data was achieved by comparison with similar data from literature[6].

Methodology

Patients undergoing surgical modality for both anorectal conditions are divided into two groups. Group A receives pudendal nerve block with local infiltration along with Spinal anaesthesia. Group B receives only Spinal anaesthesia. As the study size was 66, all consecutive patients were numbered from 1 to 66 and the odd numbers were categorized as Group A and given pudendal nerve block along with Spinal anesthesia whereas even numbers were categorized as Group B and given only spinal anesthesia. Informed consent was taken from all the patients. A detailed history of all the patients along with general physical examination and detailed local examination which include digital rectal examination and proctoscopy was performed. Colonoscopy to rule out exclusion criteria in doubtful cases was also considered. Detailed pre-anesthetic check-up along with routine blood workups and bleeding parameters was done in all patients. All patients were given enema the night prior to surgery and on the day of surgery.

Procedure:

Pudendal nerve block was performed transperineally in the lithotomy position immediately after perianal surgery in the operating table itself. Local anesthetic is injected percutaneously just posterior to the ischial spine at the attachment of sacrospinous ligament. Ischial spine can be palpated transrectally or transvaginally. the needle is placed transperineally, underneath the ischial spine on each side, and advanced one inch through the sacrospinous ligament. 5-10ml of local anesthetic (4 o'clock and 8 o'clock positions) is injected. Perineal infiltration of local anesthetic is often combined along with Pudendal block. Local anesthetic used in this study is 0.2% Ropivacaine (20ml) (duration of action 4-5 hours). Postoperatively, patients were given only Diclofenac and Paracetamol and pain was evaluated with the help of visual analog score. Patients were also given demand/rescue analgesia with Opioids (Tramadol)

Collection and validation of data:

Patient details to be formulated for this study includes hospital number, age, sex, digital rectal and proctoscopy examination as indicated, surgical procedure, type of anaesthesia, post-operative pain in the night of operation and first postoperative day (visual analog score), need for pain killers, duration of hospital stay, length of absence from work.

The data collected was tabulated in MS Excel sheet for analysis. Baseline characteristics were compared using chi-square test to see if the groups are homogenous. The means of the VAS score were compared in the two groups using Student T Test.

Results:

Sixty six (n=66) participants who underwent Hemorrhoidectomy[3,7] and Lateral anal sphincterotomy were enrolled in the study. Of them 33 received pudendal nerve block and were categorized as Group A while the remaining 33 who did not receive pudendal nerve block were categorized as Group B.

On the day of the operation 63.64% of participants in group A had no pain while only 6.06% in Group B were spared of pain. Among participants in group A, 27.27% had mild pain, 6.06% had moderate pain and 3.03% had severe pain. Whereas, in those of group B, 54.55% had mild pain, 27.27% had moderate pain and 12.12% had severe pain.(Table 1).

Table 1:Pain on the day of operation

	No Pain	Mild Pain (1-3)	Moderate Pain (4-7)	Severe Pain (8-10)
Group A	21 (63.64%)	9 (27.27%)	2 (6.06%)	1 (3.03%)
Group B	2 (6.06%)	18 (54.55%)	9 (27.27%)	4 (12.12%)

On the first post operative day 42.42% of participants in group A had no pain while only 21.21% in Group B were spared of pain. Among participants in group A, 48.49% had mild pain, 6.06% had moderate pain and 3.03% had severe pain. Whereas, in those of group B, 39.4% had mild pain, 27.27% had moderate pain and 12.12% had severe pain.(Table 2)

Table 2: Pain on 1st post operative day

	No Pain	Mild Pain (1-3)	Moderate Pain (4-7)	Severe Pain (8-10)
Group A	14 (42.42%)	16 (48.49%)	2 (6.06%)	1 (3.03%)
Group B	7 (21.21%)	13 (39.4%)	9 (27.27%)	4 (12.12%)

Only 9.09% of the population in Group A required post-operative analgesics. Whereas, 43.33% of the population in group B required Analgesics. (Table 3) It was found that there was a statistically significant association between being given pudendal nerve block and the need for analgesics post operatively. (p value <0.05)

Table 3: Requirement of Analgesics post operatively

	Required Analgesics	Didn't Require Analgesics
Group A	3 (9.09%)	30 (90.91%)
Group B	13 (43.33%)	20 (56.6%)

About 90.9% of the population in group A stayed in the hospital for less than 48 hours post operatively while 36.36% of those in Group B stayed for more than 48 hours (Table 4). It was found that there is a statistically significant association between giving pudendal block and the length of hospital stay post-operatively. (p value < 0.05)

Table 4: Post operative Hospital Stay

	Hospital Stay <48hrs	Hospital Stay > 48hrs
Group A	30 (90.9%)	3 (9.09%)
Group B	21 (63.64%)	12 (36.36%)

* chi square statistic is 8.25. the p-value is .004075. This result is significant at p <0.05

Discussion:

Pudendal nerve block with local infiltration has been used for many years and is undoubtedly safe and easy to administer with few avoidable complications[7]. On the other hand, hemorrhoids can be very disabling for the patients. The inflammation associated with hemorrhoids can lead to pain and bleeding. For patients with hemorrhoids undergoing surgery, pudendal block with local infiltration can be employed with good results and patient tolerance[8].

Our study conducted over two years included 66 patients. All the above results show the Pudendal block with local infiltration, if properly administered has excellent results with regard to patient's pain tolerance, postoperative outcome and cost effectiveness[9].

Regarding patient satisfaction, a study by Kushwala et al reported that no significant difference was noted between results after hemorrhoidectomy under local and general anesthesia, although the cost in the local anesthetic group was lower[10].

The key to reducing the rate of re-hospitalization, which still remains a relevant issue, is to have an optimal post-operative pain management strategy. Pudendal nerve block has been demonstrated to reduce postoperative pain and re-admission rates after open hemorrhoidectomy[11]. Shorter hospital stay and fewer number of unplanned re-admissions have been demonstrated by Di Giuseppe M et al, hence we can assume that the pudendal nerve block may reduce costs of non-suppurative perianal conditions[12]. The findings of our study were in agreement with that of these study.

We conclude that the addition of pudendal nerve block with spinal anesthesia for non-suppurative anal conditions reduces the post operative pain and avoids the need for opioids and its side effects[13]. It is safe and effective. It lessens the duration of hospital stay there by providing the patient with less stress of staying in the hospital for longer periods.

Conclusion:

Pudendal block with local infiltration, if properly administered has excellent results with regard to patient's pain tolerance, postoperative outcome and probable cost effectiveness. We conclude that the addition of pudendal nerve block with spinal anesthesia for non-suppurative anal conditions reduces the post operative pain and avoids the need for opioids and its side effects. It is safe and effective and it lessens the duration of hospital stay there by providing the patient with less stress of staying in the hospital for longer periods.

This study can be considered a pilot study for future studies based on effectiveness of adjuvant pudendal nerve block in non-suppurative perianal conditions wherein the accurate cost effectiveness can also be estimated.

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